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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,385	07/27/2001	Mikihiro Yokozeki	211895US8	9746

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1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT PAPER NUMBER

2828

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/915,385

Applicant(s)

YOKOZEKI ET AL.

Examiner

Armando Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed on January 5, 2004 have been fully considered but they are not persuasive.

Applicant's arguments on pages 10-12 pertaining to claims 1-3,5,6 and in particular to amended claim 1, where the claim has been amended to rearrange the sequence of depositing the first and second semiconductor layers. However, the amendment has created a contradiction to the sequence of depositing the semiconductor layers described on page 7 in lines 4-25 as the sequence is described by consecutively depositing a first etch stop layer, a first semiconductor layer and a second semiconductor layer (lines 5-7) and having the first semiconductor layer disposed between the second semiconductor and the etch stop layer (lines 20-23). Therefore, as interpreted by the examiner the order of the sequence of the semiconductor layers is not critical to the invention.

### ***Response to Amendment***

The 35 USC 112 second paragraph of claims 1-5 has been withdrawn based on applicant's amendment filed on January 5, 2004.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3,5,6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1,

Applicant's amendment created a contradiction to the sequence of depositing the semiconductor layers described on page 7 in lines 4-25 as the sequence is described by consecutively depositing a first etch stop layer, a first semiconductor layer and a second semiconductor layer (lines 5-7) and having the first semiconductor layer disposed between the second semiconductor and the etch stop layer (lines 20-23).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,5,6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mushiage et al (PN 5,933,443) in view of Horie et al (PN 6,172,998).

Regarding claims 1 and 3,

In figure 4 Mushiage illustrates of a known prior art semiconductor laser having an etch stop layer (45) composed of InGaP, a first semiconductor layer (46) composed of AlInP and a second semiconductor layer (47) composed of GaAs, where semiconductor layers are etched until the etch stop layer. Semiconductor layer (46)

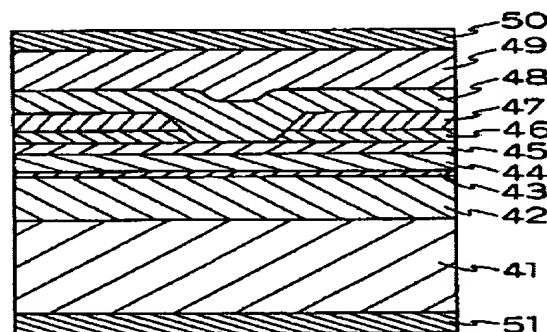
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contains aluminum, semiconductor layer (47) does not contain aluminum or phosphorus and the etch stop layer contains phosphorus, as described in column 1 lines 43-50.

Mushiage et al does not disclose the claimed sequence of depositing the etch stop layer and the semiconductor layers as recited in claims 1 and 3.

However, by original presentation applicant had recited a particular sequence of depositing the claimed layers and by amendment has rearrange the sequence of depositing the claimed layers, which suggest that absence of new or unexpected result the sequence of depositing the layers is a design preference and renders the preferred sequence as obvious. *Ex parte Rubin*, 128 USPQ 440 (Bd. App. 1959); *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) and *In re Gibson*, 39 F2d 975, 5 USPQ 230 (CCPA 1930)

FIG. 4  
PRIOR ART



Regarding claim 2,

Mushiage et al does not disclose depositing a second etch stop layer.

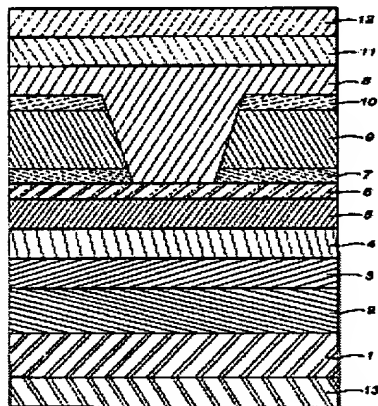
In figure 2 Horie et al illustrates a semiconductor laser having a second etch stop layer (6), a first etch stop layer (7), a first semiconductor layer (9) and second

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semiconductor layer (10), where the layers are etched until the etch stop layer (6), as described in column 5 and example 1 in column 7.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention was made to provide the semiconductor laser of Mushiage et al with a second etch stop layer because it would provide for a precise fabrication of the current injection region as suggested by Horie in column 5 lines 7-9.

**FIG.2**



Regarding claims 5 and 6,

Mushiage et al and Horie et al both describe and illustrate semiconductor lasers having semiconductor layers and etch stop layers having different compositions for these layers, which implies and suggest to a person having ordinary skill in the art that these different compositions used in the same types of semiconductor layers and etch stop layers are equivalent and interchangeable for semiconductor lasers.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use AlGaAs or GaAs for the semiconductor layers and to use InGaP for the etch stop layers because it would provide for the

fabrication of a semiconductor laser device, as described in Mushiage et al and Horie et al.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is 571-272-1952. The examiner can normally be reached on flex / M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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